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The Royal Society of London

# PHILOSOPHICAL TRANSACTIONS

Volume 40  
1737-1738

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JOHNSON REPRINT  
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NEW YORK  
1963

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*The only official reprint  
authorized by  
The Royal Society of London*

# PHILOSOPHICAL TRANSACTIONS.

GIVING SOME

# ACCOUNT

OF THE

*Present Undertakings, Studies, and Labours,*

OF THE

# INGENIOUS,

IN MANY

Confiderable Parts of the WORLD.

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VOL. XL. For the Years 1737, 1738.

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With a SUPPLEMENT, being the *Croonean* LECTURES  
on *Muscular Motion*, for the Year 1738.

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L O N D O N:

Printed for T. WOODWARD, at the *Half-Moon*, between the  
*Temple-Gates* in *Fleetstreet*; and C. DAVIS in *Pater-*  
*noster-row*; PRINTERS to the ROYAL SOCIETY.

M.DCC.XLI.

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TO THE  
H O N O U R A B L E  
John Winthrop, Esq;

FELLOW of the ROYAL SOCIETY,  
*&c. &c.*

S I R,

PERSONAL Friendships and Favours are become the trite Topics of Dedications and public Addresses, as if it concerned the Public to have upon Record the mutual Regard, private Persons may have to each other: Therefore without expatiating here, so far as Gratitude might lead me, on the many Favours you have honour'd me with, I shall confine myself to the Relation *Your Illustrious Grandfather* had, and *Yourself* have, to the ROYAL SOCIETY.

No sooner were the Sciences revived at the Beginning of the last Century, and that Natural Knowledge began to be thought a  
A Study

# DEDICATION.

Study worthy a real Philosopher, but the ingenious *JOHN WINTHROP*, Esq; your Grandfather, distinguish'd himself in the highest Rank of learned Men, by the early Acquaintance he contracted with the most Eminent not only at Home, but in his Travels all over *Europe*, by the strict Correspondence he afterwards cultivated with them \*, and by several learned Pieces he composed in Natural Philosophy; which indeed his innate Modesty would not suffer him to publish immediately,

\* As might appear from the great Treasure of curious Letters on various learned Subjects still in your Hands, E. gr. from

<i>Earl of Anglesey.</i>	<i>Dr. Everard, Ox.</i>	<i>Dr. Jesse.</i>	<i>Prince RUPERT.</i>
<i>Earl of Arundel.</i>	<i>Pet. Jo. Faber, M.D.</i>	<i>Joh. Kepler.</i>	<i>Dr. Sackville.</i>
<i>Elias Ashmole, Esq;</i>	<i>Monspelii.</i>	<i>J. S. Kuffeler, M.D.</i>	<i>Earl of Sandwich.</i>
<i>Rob. Boyle, Esq;</i>	<i>Gal. Galileo.</i>	<i>Dr. Lovell, Ox.</i>	<i>Dr. G. Starkie.</i>
<i>Tycho Brahe Ottomides.</i>	<i>J. Rud. Glauber.</i>	<i>Earl of Manchester,</i>	<i>Lord Say and Seal.</i>
<i>Lord Brereton.</i>	<i>Dr. Goddard.</i>	<i>Lord Chamberlain.</i>	<i>J. Slegelius in Acad.</i>
<i>Lord Brookes.</i>	<i>PRINCEPS Gothar.</i>	<i>Dr. Merret.</i>	<i>Franc. Med. &amp;c.</i>
<i>Lord Brounker.</i>	<i>Dr. Grew.</i>	<i>Dom. Michael, Monachus.</i>	<i>Prof.</i>
<i>Dr. Browne.</i>	<i>Mr. Hartlib.</i>	<i>John Milton.</i>	<i>Sir Rob. Southwell,</i>
<i>Jo. Camden.</i>	<i>Dr. Haversfeild.</i>	<i>Joh. de Monte.</i>	<i>Dr. Sprat, Bishop of</i>
<i>Dr. Charlton.</i>	<i>J. Bapt. van Helmont, cui fuit unius vesperi amicus ille mirificus.</i>	<i>Sir Rob. Moray.</i>	<i>Rochester.</i>
<i>Dom. Chartes Jesuita Ludg. Bat.</i>	<i>J. Fred. Helvetius.</i>	<i>Lord Napier.</i>	<i>PRINCEPS Sultsbergensis.</i>
<i>Lord Chan. Clarendon</i>	<i>Lord Herbert.</i>	<i>Mr. Isaac, afterwards Sir Isaac Newton.</i>	<i>Dr. Tanckmarus, M. D.</i>
<i>Dan. Colwall.</i>	<i>Hans Albrecht Dominus Herberstein &amp; Præfectus Mathematicæ.</i>	<i>Mr. Oldenburgh.</i>	<i>Jo. Tradescant.</i>
<i>Dr. Comenius.</i>	<i>Joh. Hevelius Cos. Gedan.</i>	<i>Dr. Pell.</i>	<i>Sir Philiberto Vernatti.</i>
<i>King CHARLES II.</i>	<i>Sir Jo. Heydon.</i>	<i>Earl of Pembroke.</i>	<i>Dr. Wilkins, afterwards Bishop of</i>
<i>O. CROMWELL.</i>	<i>FRED. PRINCEPS Holstatiæ &amp; D. Slesvic.</i>	<i>Pet. Peregrinus Romæ.</i>	<i>Chester.</i>
<i>Arthur Dee, M. D.</i>	<i>Robert Hooke.</i>	<i>Albert Peterfon Amstel. vixit an. 190.</i>	<i>Dr. Willis.</i>
<i>Jo. Dee, Jun.</i>	<i>Ch. Howard, afterwards Duke of Norfolk.</i>	<i>Sir Edward Peto.</i>	<i>Dr. Witherly, Pr. Col. Med. Lond.</i>
<i>Dr. D ekinion.</i>		<i>Dr. Polemannus.</i>	<i>Dr. Worfeley.</i>
<i>Sir K mim Digby.</i>		<i>Jo. Ray.</i>	<i>Sir Henry Wotton.</i>
<i>Corn. Debelius</i>		<i>Conrad. Roves Dominus Rosenfein</i>	<i>Sir Christ. Wren.</i>
<i>ERNESTUS Colonia Episcopus &amp; ELECT.</i>		<i>Margrav. in Croatia.</i>	
<i>Jo. Espagnet, Pr. Parl. Aquitan.</i>			

Many of which you have given me the Pleasure of perusing; besides a great Number which it would take up too much Room here to recite.

and

## DEDICATION.

and when prevailed on by Friends to impart some † of them to the Public, he concealed his Name, not being solicitous of the Reputation they might reflect on their Author: The same Principle in you still induces you not to withdraw the Veil; it having always been a Maxim with both him and you, *Prodesse quam conspici.*

THE Cloud that was gathering over his native Country, warned him and his Father to seek a quiet Retirement in the new World,

——— *Sedes ubi fata quietas*

*Ostendunt; illic fas Regna resurgere nova.*

Where, after having sold a very plentiful Estate in *Old England*, they conducted a large Body of People, and at the Expence of their whole Patrimony, first \* establish'd the Colony of *Massachusetts-Bay*, and afterwards other Colonies in *New-England*, so that they were in Reality the FOUNDERS of that now most flourishing and most potent of all the

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† Many more unpubl's'd remain in MS. in your Hands.

\* See the *Magnalia CHRISTI Americana*.



## D E D I C A T I O N.

*English* Settlements, *NEW ENGLAND*, of which his Father the Honourable *John Winthrop*, Esq; the Elder, was the first Governor.

THE Fatigues of this great Undertaking took up too much of his Time, to allow him all that Leisure that was wish'd for by his learned Friends in *Europe*, for his publishing many curious Pieces which they had Reason to expect from him. His distant Abode from *London*, and his not putting his Name to his Writings, made him not so universally known as the *Boyle's*, the *Wilkins's*, or the *Oldenburg's* of his Days, nor his Name handed down to us with such general Applause. In Concert with these and other learned Friends, (as he often revisited *England*) he was one of those, who first form'd the Plan of the *Royal Society*; and had not the Civil Wars happily ended as they did, Mr. *Boyle* \* and Dr. *Wilkins*, with several other learned Men, would have left *England*, and, out of Esteem for the most excel-

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\* As may appear in Letters from Mr. Boyle, Dr. Wilkins, Sir K. Digby, &c. to Mr. Winthrop.

## DEDICATION.

lent and valuable Governor, *JOHN WINTHROP* the younger, would have retir'd to his new-born Colony, and there have establish'd that *SOCIETY for promoting Natural Knowledge*\*, which these Gentlemen had formed, as it were, in *Embryo* among themselves; but which afterwards receiving the Protection of King *CHARLES II.* obtain'd the Style of *ROYAL*, and hath since done so much Honour to the *British Nations*, as to be imitated by the several *European Princes*, who desir'd to be esteem'd the *Patrons* of Learning.

WHEN the *Royal Society* was thus founded, it was his constant Care to shew a peculiar Regard to promote the Design of its Institution, by sending over many Specimens of the curious natural Productions of those Countries, and by communicating in Writing his Remarks upon them; some of which grace the earliest of our Transactions: And by a Letter from Mr. *Oldenburg*, written by Order of the *Royal Society*, Mr. *Winthrop*

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\* Which not taking place, his Father first founded the College at Cambridge in New-England, since known by the Name of Harvard-College.

## DEDICATION.

was in a particular manner invited to take upon him the Charge of being the chief Correspondent of the *Royal Society* in the *West*, as Sir *Philiberto Vernatti* was in the *East-Indies* \*.

YOU, Sir, have imitated the Example of your worthy Ancestor: Your Regard to the *Royal Society* shew'd itself from your Youth; you having sent to *England* many rare Curiosities for the *Museum* of the *Royal Society*, which, although by the Disingenuity of the Pilot they mis'd their Port, and were not laid up in the intended *Repository*, are some of them to be seen in a recent *Museum* now at *Cambridge*.

WHEN the Injustice and Ingratitude of a designing Party in Power among that very *People*, whereof the *WINTHROPS* have always been in the most strict Sense the *Fathers*, the *PATRES PATRIÆ*, had most cruelly driven you from your Family

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\* In a Letter from Mr. Oldenburg, Aug. 3. 1664.

## D E D I C A T I O N.

and Native Soil, to seek Justice and Security in your natural Rights from the Hands of our most *Gracious* SOVEREIGN; amidst the Vexation of the greatest Abuses, and the Hurries of the most sudden Departure, you were not unmindful of the *Royal Society*; for soon after your being chosen a *Fellow*, you increas'd the Riches of their *Repository* with above Six hundred curious Specimens, chiefly in the Mineral Kingdom, accompanied with a List containing an accurate Account of each Particular; thereby shewing your great Skill in natural Philosophy, and at the same time intimating to *England* the vast Riches which lie hidden in the Lap of her principal Daughter. Since Mr. *Colwall*, the Founder of the *Museum* of the *Royal Society*, you have been the Benefactor who has given the most numerous Collection; and it is to be hoped your generous Example will be followed by some of the present Members, by which means our *Repository* may soon become one of the most conspicuous in *Europe*.

THE extraordinary Knowledge, you have in the deep Mysteries of the most secret *Hermetic*

## DEDICATION.

*metic Science*, will always make you esteemed and courted by learned and good Men ; but I forbear to say any more, lest the Trouble I have given you by this long Address should be a Trespas upon your Patience ; in which Case I know your Goodness will forgive me ; and I hope you will be persuaded, that I am upon all Occasions, with the greatest Sincerity,

S I R,

*Dartmouth-street,  
WESTMINSTER,  
August 15. 1741.*

*Your most affectionate Friend,  
and obliged humble Servant,*

**CROMWELL MORTIMER, M.D.**

*Secretary to the ROYAL SOCIETY, and  
Fellow of the ROYAL COLLEGE of  
PHYSICIANS, LONDON.*

# PHILOSOPHICAL TRANSACTIONS

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I. Matthiæ

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*At a Meeting of the Council of the ROYAL  
SOCIETY, Nov. 12. 1739.*

**T**HESE Lectures on MUSCULAR MOTION, by  
Alexander Stuart, M.D. &c. having been, according  
to the Will of the Lady Sadleir, communicated  
before-hand to me, and approved, and afterwards  
read at several Meetings of this SOCIETY, for  
which he received their Thanks: I do direct the  
same to be printed.

Hans Sloane, P. R. S.

To the HONOURABLE  
Sir *HANS SLOANE*, Bar<sup>t</sup>.  
P R E S I D E N T,  
AND TO THE  
COUNCIL and FELLOWS  
OF THE  
*ROYAL SOCIETY*  
*Of LONDON*, for  
Promoting Natural Knowledge,  
These three first LECTURES on  
**MUSCULAR MOTION**  
Are humbly Dedicated.

B Y

*Their most obedient*  
*humble Servant,*

**ALEXANDER STUART.**